Instructional Discipline Template

A. Program Information

Program Mission Statement

Please enter your mission statement here.

Physics as a field attempts to model and describe the world around us. It is universal, and is for everyone. The Foothill College Physics Department endeavors to provide all students with a solid foundation in physics through both lecture and lab, in order to support STEMM disciplines, with the goal of either transfer to four-year programs or entry into professional programs. Additionally, we support all of the students at Foothill by offering General Ed classes, so that everyone can understand how physics, and science in general, is part of their lives. To support the college mission, we develop students' analytical reasoning, collaborative learning, and critical thinking skills to help become informed global citizens and achieve their future goals.

Program Level Student Learning Outcomes

Please list the program level student learning outcomes.

Upon completion of the AS degree, students will demonstrate the ability to apply the laws of physics to word problems, properly manipulating basic mathematical formulae to arrive at the correct answers.

Upon completion of the AS degree, students will demonstrate the ability to effectively communicate physics by crafting written lab reports and/or giving oral presentations.

Upon completion of the AS degree, students will demonstrate mastery of lower-level lab skills such as proper use of standard lab equipment and proper application of data analysis.

B. FTES - Enrollment Trends

Enrollment Variables and Trends

Enrollment Trends
Science Technology Engineering & Mathematics - Physics-FD

	2016-17	2017-18	2018-19	2019-20	2020-21	5-yr %Inc
Unduplicated Headcount	1,038	870	862	951	949	-8.6%
Census Enrollment	1,547	1,405	1,394	1,436	1,483	-4.1%
Sections	65	59	51	53	50	-23.1%
WSCH	3,687	3,382	3,261	3,386	3,631	-1.5%
FTES (end of term)	249	228	220	229	245	-1.6%
FTEF (end of term)	8.0	7.3	5.9	6.3	5.9	-26.2%
Productivity (WSCH/FTEF)	460	461	552	537	614	33.5%

1. In the data table above, what does the FTES data trend indicate?

- ☐ the data trend shows an increase in FTES
- ☐ the data trend shows a decrease in FTES
- ☑ the data trend shows no change and/or is flat in FTES

Discuss the factors that would help the college understand these trends and whether there are tangible reasons for no change/flat, an increase or decrease in the trend.

There was an initial drop in FTES as we shrunk from 65 sections to a smaller number. These numbers recovered in part do to larger class sizes during the distance-learning portion of the pandemic. It is also important to note that the department lost a full-time instructor during this time.

2. Looking at the data trend, has the faculty/staff discussed proposed actions to stabilize/increase FTES?

☐ yes

☑ no

If yes, describe the proposed actions for stabilizing/increasing the FTES.

N/A

C. Sections - Enrollment Trends

1. In the data table above, what does the data trend indicate about the number of sections offered?

☐ the data trend shows an increase in sections

☑ the data trend shows a decrease in sections

☐ the data trend shows no change and/or is flat in sections

If the data trend shows no change/flat or an increase or decrease in sections, explain why the number of sections is flat, increased or decreased.

After the 2017-18 academic year we lost a FT faculty member. This, combined with a college pivot to prioritizing productivity, led to a reduction in the number of sections taught.

If the data indicates an increase in sections with a decrease in FTES, explain why the number of sections increased while FTES decreased.

N/A.

D. Productivity - Enrollment Trends

1. In the data table above, what does the data trend indicate about the productivity number?

☑ the data trend shows the productivity number increased

☐ the data trend shows the productivity number decreased

☐ the data trend shows no change and/or flat in the productivity number

If the data trend shows no change/flat or an increase or decrease in productivity, explain why the productivity is flat, increased or decreased.

There was a strong increase in productivity (from 460 to 614), as the department intentionally scheduled to prevent low-enrollment classes. During the distance-learning year, some classes ran very large due to the removal of lab-size constraints. However, this is not equitably sustainable, which will be discussed later.

2. Does the data trend suggest changes are necessary to improve productivity?

☐ yes

☑ no

If yes, describe the proposed actions for stabilizing/increasing the productivity number.

N/A

Enrollment Distribution

Enr Distribution by Student Demographics
Science Technology Engineering & Mathematics - Physics-FD

by Gender

	2016-17		2017-18		2018-19		2019-20		2020-21	
	Enr	Percent	Enr	Percent	Enr	Percent	Enr	Percent	Enr	Percent
Female	474	31%	457	33%	476	34%	545	38%	570	38%
Male	1,069	69%	940	67%	913	65%	874	61%	889	60%
Non-Binary	0	0%	0	0%	0	0%	2	0%	2	0%
Unknown	4	0%	8	1%	5	0%	15	1%	22	1%
Total	1,547	100%	1,405	100%	1,394	100%	1,436	100%	1,483	100%

by Ethnicity

	2016-17		2017-18		2018-19		2019-20		2020-21	
	Enr	Percent	Enr	Percent	Enr	Percent	Enr	Percent	Enr	Percent
African American	25	2%	30	2%	32	2%	29	2%	42	3%
Asian	713	46%	752	54%	831	60%	808	56%	814	55%
Decline to State/Unknown	170	11%	72	5%	16	1%	29	2%	51	3%
Filipinx	69	4%	56	4%	66	5%	66	5%	61	4%
Latinx	178	12%	146	10%	138	10%	169	12%	163	11%
Native American	16	1%	7	0%	3	0%	8	1%	5	0%
Pacific Islander	9	1%	2	0%	2	0%	7	0%	18	1%
White	367	24%	340	24%	306	22%	320	22%	329	22%
Total	1,547	100%	1,405	100%	1,394	100%	1,436	100%	1,483	100%

a. Enrollment by Gender

The following questions concern enrollment distribution by gender.

1. In the data table above, what does the data trend indicate about program enrollment by gender?

Females

- [x] the data trend shows an increase in the female enrollment rates
- [ ] the data trend shows a decrease in the female enrollment rates
- [ ] the data trend shows no change and/or is flat in the female enrollment rates

Males

- [ ] the data trend shows an increase in the male enrollment rates
- [x] the data trend shows a decrease in the male enrollment rates
- [ ] the data trend shows no change and/or is flat in the male enrollment rates

Non-Binary

- [ ] the data trend shows an increase in the non-binary enrollment rates
- [ ] the data trend shows a decrease in the non-binary enrollment rates
- [x] the data trend shows no change and/or is flat in the non-binary enrollment rates

If the data trend shows no change/flat, an increase or decrease in male, female, or non-binary enrollment, explain why the enrollment rates is flat, increased, or decreased.

The data show an increase in percentage of female-identifying students. Data from the American Institute of Physics show that fewer than 25% of physics majors identify as female. As physics suffers from extreme gender disparity, the department has taken efforts to make our classes more welcoming to women. These include highlighting the contributions of women, being open and honest about our field's struggle with gender inequities, being respectful with pronouns, and minimizing the use of sports or military examples/homework problems. We intentionally hire women presenters for the Physics Show to disrupt harmful stereotypes for young people. While none of these in their own right act as a magic bullet, taken as a whole they many generate a more supporting environment.

2. Does your program differ in the percentage of males to females, in this most recent year, compared to the College? (College 2020-21 = 52% Female, 46% Male)

- [x] yes
- [ ] no

If the data indicates a lack of gender parity in your program as compared to the college percentages, what is the source of that disparity and what proposed/planned actions is the program taking to achieve parity?

As the previous response demonstrated, physics as a field suffers from great gender disparity. We are doing better than our field as a whole, and are showing improvement. We should continue to implement our practices and look for other means of improvement.

Data Table for Enrollment by Gender of Declared Majors

https://foothill.edu/programreview/prg-rev-docs/majors-by-gender-10.25.21.pdf

Click the link to view Enrollment by Gender of Declared Majors data table and respond to the questions below.

3. In the data table above, what does the data trend indicate about enrollment (headcount) by gender of declared majors in the program?

Females

- [ ] the data trend shows an increase in the female enrollment of the declared major
- [x] the data trend shows a decrease in the female enrollment of the declared major
- [ ] the data trend shows no change and/or is flat in the female enrollment of the declared major

Males

- [x] the data trend shows an increase in the male enrollment of the declared major
- [ ] the data trend shows a decrease in the male enrollment of the declared major
- [ ] the data trend shows no change and/or is flat in the male enrollment of the declared major

Non-Binary

- [ ] the data trend shows an increase in the non-binary enrollment rates
- [ ] the data trend shows a decrease in the non-binary enrollment rates
- [x] the data trend shows no change and/or is flat in the non-binary enrollment rates

b. Enrollment by Ethnicity

The following questions concern enrollment distribution by ethnicity.

1. In the data table above, what do the data trends indicate about program enrollment by ethnicity?

African American

- [ ] the data trend shows an increase in the African Americans enrollment rates
- [ ] the data trend shows a decrease in the African Americans enrollment rates
- [x] the data trend shows no change and/or is flat in the African Americans enrollment rates

Asian

- [x] the data trend shows an increase in the Asian enrollment rates
- [ ] the data trend shows a decrease in the Asian enrollment rates
- [ ] the data trend shows no change and/or is flat in the Asian enrollment rates

Filipinx

- [ ] the data trend shows an increase in the Filipinx enrollment rates
- [ ] the data trend shows a decrease in the Filipinx enrollment rates
- [x] the data trend shows no change and/or is flat in the Filipinx enrollment rates

Latinx

- [ ] the data trend shows an increase in the Latinx enrollment rates
- [ ] the data trend shows a decrease in the Latinx enrollment rates
- [x] the data trend shows no change and/or is flat in the Latinx enrollment rates

Native American

- [ ] the data trend shows an increase in the Native American enrollment rates
- [ ] the data trend shows a decrease in the Native American enrollment rates
- [x] the data trend shows no change and/or is flat in the Native American enrollment rates

Pacific Islander

- [ ] the data trend shows an increase in the Pacific Islander enrollment rates
- [ ] the data trend shows a decrease in the Pacific Islander enrollment rates
- [x] the data trend shows no change and/or is flat in the Pacific Islander enrollment rates

White

- [x] the data trend shows a decrease in the White enrollment rates
- [ ] the data trend shows no change and/or is flat in the White enrollment rates

Decline to State

- [ ] the data trend shows an increase in the Decline to State enrollment rates
- [x] the data trend shows a decrease in the Decline to State enrollment rates
- [ ] the data trend shows no change and/or is flat in the Decline to State enrollment rates

2. Does your program differ in enrollment distribution among ethnic groups, in this most recent year, compared to the College enrollment by ethnic group? (College 2020-21 = 5% African American, 28% Asian, 5% Filipinx, 28% Latinx, 1% Native American, 1% Pacific Islander, 29% White, 4% Decline to State)

- [ ] yes
- [ ] no

If yes, looking at the ethnic groups above, explain changes identified over the past five years for each ethnic group (address each ethnic group by bullet point).

- African American - This trend has been flat.
- Asian - There has been a large increase in Asian-identifying students, combined with a corresponding drop in Decline to State. It is possible that Asian students once made up a large portion of Decline to State (perhaps as a response to the perception of racial quotas in education admissions), and the behavior has since changed.
- Filipinx - This trend has been flat.
- Latinx - This trend has been flat.
- Native American - Small sample size, flat trend.
- Pacific Islander - Small sample size, flat trend.
- White - This trend has been flat.
- Decline to State - See Asian

Outside of what is perhaps a labelling issue, the enrollment by ethnicity has not seen any significant changes.

3. Do the data trends suggest programmatic actions are necessary to address disparities in enrollment by ethnicity, including low enrollment within a particular group?

- [x] yes
- [ ] no

If yes, describe the proposed actions for addressing disparities in enrollment by ethnic group within the program.

While the Physics Department's enrollment rates are near to college average for Fillipinx, Native Americans, Pacific Islanders, and Whites, there is strong overrepresentation from Asians (55.5% for the past two years as opposed to 28% for the college), and strong underrepresentation for African Americans (2.5% vs 5%) and Latinx (11.5% vs. 28%). While African Americans and Latinx students are generally underrepresented in physics at-large, we can do better. We propose eliminating double-lab lectures, which place 56 students into a class. Feelings of inclusion and belonging are an important factor in success and physics, moving away from large lectures will allow for better community building. Additionally, instructors will be able to spend more time focusing on supporting students who have been underserved by our educational system. It also opens the door to models of instruction where lab and lecture are more closely blended, centering experiment, which is the heart of science.

F. Student Course Success

Course Success Rates by Unit

Course Success
Science Technology Engineering & Mathematics - Physics-FD

	2016-17		2017-18		2018-19		2019-20		2020-21	
	Grades	Percent	Grades	Percent	Grades	Percent	Grades	Percent	Grades	Percent
Success	1,062	69%	987	70%	990	71%	1,037	72%	1,079	73%
Non Success	257	17%	206	15%	232	17%	158	11%	156	11%
Withdrew	228	15%	212	15%	172	12%	241	17%	248	17%
Total	1,547	100%	1,405	100%	1,394	100%	1,436	100%	1,483	100%

Course Success for African American, Latinx, and Filipinx Students

	2016-17		2017-18		2018-19		2019-20		2020-21	
	Grades	Percent	Grades	Percent	Grades	Percent	Grades	Percent	Grades	Percent
Success	168	62%	142	61%	121	51%	158	60%	166	62%
Non Success	53	19%	43	19%	68	29%	46	17%	39	15%
Withdrew	51	19%	47	20%	47	20%	60	23%	61	23%
Total	272	100%	232	100%	236	100%	264	100%	266	100%

Course Success for Asian, Native American, Pacific Islander, White, and Decline to State Students

	2016-17		2017-18		2018-19		2019-20		2020-21	
	Grades	Percent	Grades	Percent	Grades	Percent	Grades	Percent	Grades	Percent
Success	894	70%	845	72%	869	75%	879	75%	913	75%
Non Success	204	16%	163	14%	164	14%	112	10%	117	10%
Withdrew	177	14%	165	14%	125	11%	181	15%	187	15%
Total	1,275	100%	1,173	100%	1,158	100%	1,172	100%	1,217	100%

Some courses may continue to be listed but no longer have data due to renumbering or because the course was not offered in the past five years.

a. Student Course Success

1. In the data table above, what does the data trend indicate about overall course success?

- [x] the data trend shows an increase in the students' course success percentage
- [ ] the data trend shows a decrease in the students' course success percentage
- [ ] the data trend shows no change and/or is flat in the students' course success percentage

If the data trend shows an increase, decrease, or no change and/or is flat in students' course success percentage, explain what programmatic factors led to such a trend.

The Physics Department has culture of pedagogical improvement through continuous professional development and internal meetings/discussions. The department is very active in the physics teacher community, holding officer positions at the local AAPT (American Association of Physics Teachers) level and at the national level. These meetings often lead to developing teaching skills, expose us to best practices, and give us the ability to refine our methods with input from our colleagues.

2. Do the data suggest changes are necessary to improve student course success?

- [x] yes
- [ ] no

If yes, describe the proposed actions for stabilizing/increasing the student's course success percentages.

While we have seen slow, steady improvement in our success rates overall, a 73% success rate has much room for improvement. Our algebra/trig sequence is three quarters long, and is staggered in such a way that if a student doesn't pass a class they could lose half a year. Our calculus-based sequence is four quarters long, so not passing one or more classes could extend a student's time at Foothill. In addition to our continual, incremental improvements via professional development, moving away from double-lab lectures will allow inclusive community-building, and more focus on individual student success. Also, our current double-lab-lecture format prevents us from running classes where labs are more effectively blended into the lectures (as the labs contain only 1/2 of the students). This prevents us from better leveraging the hands-on learning in labs better into the lecture parts of our classes, which should improve student success.

b. Student Course Success by Student Groups

1. In the data table above, what is the observed trend for course success rates for African American, Filipinx, and Latinx student groups?

- ☐ the data trend shows an increase in the course success percentage
- ☐ the data trend shows a decrease in the course success percentage
- ☑ the data trend shows no change and/or is flat in the course success percentage

2. In the data table above, what is the observed trend for course success rates for Asian, Native American, Pacific Islander, White, and Decline to State student groups?

- ☑ the data trend shows an increase in the course success percentage
- ☐ the data trend shows a decrease in the course success percentage
- ☐ the data trend shows no change and/or is flat in the course success percentage

3. In the data table above, is there a course success gap between African-American, Latinx, Filipinx student groups and Asian, Native American, Pacific Islander, White, Decline to State student groups?

- ☑ yes
- ☐ no

If the data trend shows an increase, decrease, or no change/flat in course success gap, explain why the course success gap is flat, increased, or decreased.

There has been an increase in our course success gap. This has occurred at the same time we have seen a large increase in productivity. The effectiveness of many our pedagogical improvements that have worked for the more privileged populations have not been shown for our underserved populations. Physics is a White and Asian male dominated field, and inclusion and feelings of belonging are important for a student's well-being. These are harder to cultivate in large lectures.

Identity as a scientist can play a role in persistence. Underserved populations are not seen, and often struggle to see themselves as scientists. As science is based upon experiments done in lab, more effective blending of lab and lecture by going to single sections could help improve underserved students' views of themselves as scientists.

4. Does the data suggest that changes are necessary to decrease student course success gap between African-American, Latinx, Filipinx student groups and Asian, Native American, Pacific Islander, White, and Decline to State student groups?

- ☑ yes
- ☐ no

If yes, what actions are program faculty and staff engaged in to decrease the course success gap between African-American, Latinx, and Filipinx student groups and Asian, Native American, Pacific Islander, White, and Decline to State student groups?

As discussed above, the physics faculty strongly believe that moving away from double-lab lectures will allow us to better support all of our students, but especially those who have been historically underserved. We would also like to pursue targeted professional development that would expose us to best practices and current thinking in supporting these populations.

G. Student Course Success by Demographics

a. Student Course Success by Gender

The following questions concern student success rates by gender.

Course Success Rates by Group

Success Rates by Gender
Science Technology Engineering & Mathematics - Physics-FD

	2020-21							
	Success		Non Success		Withdrew		Total	
	Grades	Percent	Grades	Percent	Grades	Percent	Grades	Percent
Female	438	77%	47	8%	85	15%	570	100%

Female								
Male	625	70%	106	12%	158	18%	889	100%

2020-21

	Success		Non Success		Withdrew		Total	
	Grades	**Percent**	**Grades**	**Percent**	**Grades**	**Percent**	**Grades**	**Percent**
Non-Binary	1	50%	0	0%	1	50%	2	100%
Unknown	15	68%	3	14%	4	18%	22	100%
All	1,079	73%	156	11%	248	17%	1,483	100%

2019-20

	Success		Non Success		Withdrew		Total	
	Grades	**Percent**	**Grades**	**Percent**	**Grades**	**Percent**	**Grades**	**Percent**
Female	417	77%	49	9%	79	14%	545	100%
Male	612	70%	105	12%	157	18%	874	100%
Non-Binary	1	50%	0	0%	1	50%	2	100%
Unknown	7	47%	4	27%	4	27%	15	100%
All	1,037	72%	158	11%	241	17%	1,436	100%

2018-19

	Success		Non Success		Withdrew		Total	
	Grades	**Percent**	**Grades**	**Percent**	**Grades**	**Percent**	**Grades**	**Percent**
Female	352	74%	66	14%	58	12%	476	100%
Male	634	69%	165	18%	114	12%	913	100%
Non-Binary	0	N/A	0	N/A	0	N/A	0	100%
Unknown	4	80%	1	20%	0	0%	5	100%
All	990	71%	232	17%	172	12%	1,394	100%

2017-18

	Success		Non Success		Withdrew		Total	
	Grades	**Percent**	**Grades**	**Percent**	**Grades**	**Percent**	**Grades**	**Percent**
Female	328	72%	55	12%	74	16%	457	100%
Male	654	70%	150	16%	136	14%	940	100%
Non-Binary	0	N/A	0	N/A	0	N/A	0	100%
Unknown	5	63%	1	13%	2	25%	8	100%
All	987	70%	206	15%	212	15%	1,405	100%

2016-17

	Success		Non Success		Withdrew		Total	
	Grades	**Percent**	**Grades**	**Percent**	**Grades**	**Percent**	**Grades**	**Percent**
Female	321	68%	76	16%	77	16%	474	100%
Male	738	69%	180	17%	151	14%	1,069	100%
Non-Binary	0	N/A	0	N/A	0	N/A	0	100%
Unknown	3	75%	1	25%	0	0%	4	100%

Unknown	3	75%	1	25%	0	0%	4	100%

2016-17

	Success		Non Success		Withdrew		Total	
All	1,062	69%	257	17%	228	15%	1,547	100%

Success Rates by Ethnicity

Science Technology Engineering & Mathematics - Physics-FD

2020-21

	Success		Non Success		Withdrew		Total	
	Grades	Percent	Grades	Percent	Grades	Percent	Grades	Percent
African American	24	57%	7	17%	11	26%	42	100%
Asian	613	75%	74	9%	127	16%	814	100%
Decline to State/Unknown	33	65%	3	6%	15	29%	51	100%
Filipinx	37	61%	6	10%	18	30%	61	100%
Latinx	105	64%	26	16%	32	20%	163	100%
Native American	5	100%	0	0%	0	0%	5	100%
Pacific Islander	12	67%	2	11%	4	22%	18	100%
White	250	76%	38	12%	41	12%	329	100%
All	1,079	73%	156	11%	248	17%	1,483	100%

2019-20

	Success		Non Success		Withdrew		Total	
	Grades	Percent	Grades	Percent	Grades	Percent	Grades	Percent
African American	14	48%	10	34%	5	17%	29	100%
Asian	614	76%	76	9%	118	15%	808	100%
Decline to State/Unknown	20	69%	5	17%	4	14%	29	100%
Filipinx	39	59%	11	17%	16	24%	66	100%
Latinx	105	62%	25	15%	39	23%	169	100%
Native American	7	88%	0	0%	1	13%	8	100%
Pacific Islander	4	57%	1	14%	2	29%	7	100%
White	234	73%	30	9%	56	18%	320	100%
All	1,037	72%	158	11%	241	17%	1,436	100%

2018-19

	Success		Non Success		Withdrew		Total	
	Grades	Percent	Grades	Percent	Grades	Percent	Grades	Percent
African American	17	53%	6	19%	9	28%	32	100%
Asian	610	73%	126	15%	95	11%	831	100%
Decline to State/Unknown	11	69%	4	25%	1	6%	16	100%
Filipinx	37	56%	18	27%	11	17%	66	100%
Latinx	67	49%	44	32%	27	20%	138	100%
Native American	2	67%	0	0%	1	33%	3	100%
Pacific Islander	2	100%	0	0%	0	0%	2	100%
White	244	80%	24	11%	28	9%	306	100%

White	244	80%	34	11%	28	9%	306	100%

2018-19

	Success		Non Success		Withdrew		Total	
All	990	71%	232	17%	172	12%	1,394	100%

2017-18

	Success		Non Success		Withdrew		Total	
	Grades	Percent	Grades	Percent	Grades	Percent	Grades	Percent
African American	20	67%	5	17%	5	17%	30	100%
Asian	548	73%	106	14%	98	13%	752	100%
Decline to State/Unknown	52	72%	14	19%	6	8%	72	100%
Filipinx	33	59%	13	23%	10	18%	56	100%
Latinx	89	61%	25	17%	32	22%	146	100%
Native American	3	43%	3	43%	1	14%	7	100%
Pacific Islander	1	50%	0	0%	1	50%	2	100%
White	241	71%	40	12%	59	17%	340	100%
All	987	70%	206	15%	212	15%	1,405	100%

2016-17

	Success		Non Success		Withdrew		Total	
	Grades	Percent	Grades	Percent	Grades	Percent	Grades	Percent
African American	11	44%	8	32%	6	24%	25	100%
Asian	489	69%	122	17%	102	14%	713	100%
Decline to State/Unknown	131	77%	29	17%	10	6%	170	100%
Filipinx	46	67%	9	13%	14	20%	69	100%
Latinx	111	62%	36	20%	31	17%	178	100%
Native American	9	56%	2	13%	5	31%	16	100%
Pacific Islander	5	56%	2	22%	2	22%	9	100%
White	260	71%	49	13%	58	16%	367	100%
All	1,062	69%	257	17%	228	15%	1,547	100%

Some courses may continue to be listed but no longer have data due to renumbering or because the course was not offered in the past five years.

1. In the data table above, what does the data indicate about program course success by gender?

Females

- [x] the data trend shows an increase in the female course success rates
- [ ] the data trend shows a decrease in the female course success rates
- [ ] the data trend shows no change and/or is flat in the female course success rates

Males

- [ ] the data trend shows an increase in the male course success rates
- [ ] the data trend shows a decrease in the male course success rates
- [x] the data trend shows no change and/or is flat in the male course success rates

Non-Binary

- [ ] the data trend shows an increase in the non-binary course success rates

☐ the data trend shows a decrease in the non-binary course success rates

☑ the data trend shows no change and/or is flat in the non-binary course success rates

If the data trend shows an increase, decrease, or no change/flat in the male, female, or non-binary student course success percentages, explain why the percentage is flat, increased, or decreased.

As discussed previously, the department has taken many incremental efforts to make our classes more welcoming to women, including highlighting the contributions of women in physics, transparency around our field's problematic issues with gender, being respectful gender identity via pronouns, and being thoughtful about the cultural framing of our work problems. Note that the same arguments about identity as a scientist that apply for underserved racial populations also apply to women in physics, so solutions proposed there may also benefit here.

2. Do the data suggest changes are necessary to improve female, male, or non-binary student course success percentage rates?

☑ yes

☐ no

If yes, describe proposed actions to stabilize/increase the course success rates for male, female, or non-binary.

While we are happy for the progress that has been made, given our overall success rates we feel that there is much room for improvement. Again, we plan to address these by moving away from double-lab lectures, and also by continuing to engage in professional development.

b. Student Course Success by Ethnicity

These questions concern the course success rates of students by ethnicity.

1. In the data table above, what does the data trend indicate about program student course success by ethnicity?

African Americans

☑ the data trend shows an increase in the African Americans course success rates

☐ the data trend shows a decrease in the African Americans course success rates

☐ the data trend shows no change and/or is flat in the African Americans course success rates

Asian

☑ the data trend shows an increase in the Asian course success rates

☐ the data trend shows a decrease in the Asian course success rates

☐ the data trend shows no change and/or is flat in the Asian course success rates

Filipinx

☐ the data trend shows an increase in the Filipinx course success rates

☑ the data trend shows a decrease in the Filipinx course success rates

☐ the data trend shows no change and/or is flat in the Filipinx course success rates

Latinx

☐ the data trend shows an increase in the Latinx course success rates

☐ the data trend shows a decrease in the Latinx course success rates

☑ the data trend shows no change and/or is flat in the Latinx course success rates

Native American

☐ the data trend shows an increase in the Native American course success rates

☐ the data trend shows a decrease in the Native American course success rates

☑ the data trend shows no change and/or is flat in the Native American course success rates

Pacific Islander

☐ the data trend shows an increase in the Pacific Islander course success rates

☐ the data trend shows a decrease in the Pacific Islander course success rates

- [x] the data trend shows no change and/or is flat in the Pacific Islander course success rates

White

- [x] the data trend shows an increase in the White course success rates
- [ ] the data trend shows a decrease in the White course success rates
- [ ] the data trend shows no change and/or is flat in the White course success rates

Decline to State

- [ ] the data trend shows an increase in the Decline to State course success rates
- [x] the data trend shows a decrease in the Decline to State course success rates
- [ ] the data trend shows no change and/or is flat in the Decline to State course success rates

If the data trend shows a decrease in any of the student ethnic groups' course success rates, explain why the percentage decreased for each (address each ethnic group by bullet point).

- Filipinx dropped from 67% to 61%. This is on a smallish sample size of roughly 40 people out of 1000, but the department should be aware of this trend.
- Decline to State dropped from 69% to 65%. It is hard t have insight into this group, but if our previous hypothesis of the drop in DTS population being due to Asian-heritage students relabeling themselves, the removal of members of a highly successful group could explain these results.

2. Do the data indicate a gap in course success for any of the ethnic groups as compared to other groups?

- [x] yes
- [ ] no

If yes, describe the reasons for the gap in course success.

There are equity gaps in our success rates. There are many reasons why these gaps exist. Students from these populations have been underserved by our educational system, for example, the percentage of Latinx students is a statistically significant predictor of course offerings in high school physics programs in Northern California public high schools (Marasco & Barnett Dreyfuss, The Physics Teacher **58**, 673 (2020)). Physics as a field has well-recognized and significant problems with African-American and Latinx participation and success, leading to issues surrounding both stereotype threat and feelings of inclusion.

3. Do the data suggest that changes are necessary to improve program course success equality?

- [x] Yes
- [ ] No

If yes, describe the proposed actions for stabilizing/improving the course success by ethnicity.

Yes. The department wishes to move away from the double-lab single-lecture model, which is in place to support college-wide productivity goals. This paradigm leads to very large lecture classes, which makes implementation of many pedagogical reforms more difficult, and often can leave students with the feeling that they are swimming in a sea of students, which makes the community-building needed for feeling of inclusion very difficult. To not go in this direction blunts the effectiveness of anything else that we try.

Use this opportunity to provide feedback on the template or address a topic that was not previously discussed.

The department has rebooted The Physics Show, which prior to the pandemic served over 20k guests a year, including roughly 5k local Title 1 ("free lunch") schools. The faculty are deeply involved in the Physics Education community, both at the regional (Northern California) and national levels, with a focus on the DEI elements of our field.

Self-Study Checklist

Writers can use this final checklist for ensuring quality control before hitting the final submit button.

- [x] Attended the Writer Orientation/Training in November
- [x] Responses are supported by the data

- [x] Engaged in discussion with IR Coach
- [x] The Self-Study Report was written collaboratively with other program stakeholders
- [x] The Self-Study Report was proofread by a collaborator

This form is completed and ready for acceptance.